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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/782,149
Filing Date: February 14, 2001
Appellant(s): LEE, YUNG-SEOP

Harden E. Stevens, III
Reg. No. 55,649
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 13, 2006 appealing from the Office action mailed July 12, 2005.

(1) Real Party in Interest

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The real party of interest in this matter is NCR Corporation of Dayton, Ohio, by virtue of an assignment recorded at reel 01531, frame 0060-0062, on February 14, 2001.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Hughes, Arthur Middleton. "Quick Profits with RFM Analysis". archived 2/8/1999 at www.dbmarketing.com/articles/rfmttools.html.

"RFM for Windows", Database Marketing Institute. archived 2/3/99 at www.dbmarketing.com/ams.html.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Arthur Hughes' "Quick Profits with RFM Analysis" (wherein referred to as Reference A).

As per claim 1, reference A teaches a computer implemented (on a spreadsheet) [Paragraph 13] method of evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the method comprising:

(a) first assigning a discretized attribute score (code of 1,2,3,4, or 5) for each of the attribute values [Paragraph 4];

(b) first sorting the plurality of records in to an order (by most recent to most ancient) based on the assigned discretized attribute scores associated with the first attribute (recency) [Paragraph 4];

(c) second sorting the plurality of records in to an order (by most frequent to least frequent) based on the assigned discretized attribute scores associated with the second attribute (frequency) [Paragraph 6];

(d) third sorting the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records,

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which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (RFM cells) [Paragraph 10]; and

(e) second assigning an evaluation score (RFM cell code) to each record which has been sorted [Paragraph 10].

As per claim 2, Reference A teaches the method of claim 1, wherein step (a) includes the steps of:

(i) breaking the plurality of records into a number of groups (quintiles) based on the attribute values (recency, frequency, and monetary) [Paragraphs 4,6, and 8]; and

(ii) for records of each group, assigning a discretized attribute score (code of 5,4,3,2, or 1) for the attribute values [Paragraph 4,6, and 8].

As per claim 3, Reference A teaches the method of claim 2, further including the step of sorting the plurality of records in the order based on the attribute values associated with one of at least the first attribute (recency) and the second attribute (frequency) [Paragraphs 4 and 6].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reference A.

As per claim 4, Reference A fails to teach that the records should be broken into quartiles or that records of each quartile are assigned one of the scores of 1,2,3 and 4 for the attribute values associated with the one of at least the first attribute and the second attribute. However, Reference A teaches a method of breaking a plurality of records into quintiles instead of quartiles. For records of each quintile, one of the scores 1,2,3,4, and 5 are assigned for the attribute values associated with the one of at least the first attribute and the second attribute.

Reference A reinforces a well known concept in the art that the number of cells needed is a design choice that varies depending on the size of the database and the business' needs. Reference A also teaches that you want to have as many cells as possible so that you can more accurately predict customer response, but that having too many cells may result in each test cell failing to have enough data to be statistically valid. [Paragraph 22] An airline may change the number of cells into which the records are divided, depending on the number of customer records available, and to ensure that each cell is statistically valid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to divide the records into quartiles instead of quintiles for the reasons discussed therein above.

As per claim 7, Reference A fails to explicitly disclose the process of reiteratively performing step (d) of Claim 1 until records, which have the same assigned discretized attribute scores but different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks. However, Reference A teaches that a spreadsheet can be used to sort records into different RFM cells and group them together with other records sharing the same two digit cell code (meaning they have attribute values in the same quintile). [Paragraphs 10 and 13]

The spreadsheet (embodied on a computer as software programs such as Microsoft Excel or Lotus 1-2-3) used to conduct the RFM analysis can also be used to sort records within the same RFM cell grouping. The spreadsheet software would perform step (d) once to sort records into RFM cell groupings, and once again within each RFM cell grouping to rank individual records by attribute value, if needed. The concept of sorting data by a certain attribute is old and well known in the art. It is old and well known in the art that computer spreadsheets can sort records according to any attribute by which the record is defined. Sorting the plurality of records would allow an airline to quickly reference, access, and retrieve data. Sorting customers into and within RFM cell groups may enable airlines to identify and prioritize key customers (for retention, targeted marketing promotions, etc). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to include sorting for the reasons discussed therein above.

As per claim 8, Reference A fails to explicitly disclose the process of reiteratively performing step (d) of Claim 1 until records, which have the same assigned discretized attribute scores but different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks based on the value of the first attribute. However, Reference A teaches that a spreadsheet can be used to sort records into different RFM cells and group them together with other records sharing the same two digit cell code (meaning they have attribute values in the same quintile).

[Paragraphs 10 and 13]

The spreadsheet (embodied on a computer as software programs such as Microsoft Excel or Lotus 1-2-3) used to conduct the RFM analysis can also be used to sort records within the same RFM cell grouping. The spreadsheet software would perform step (d) once to sort records into RFM cell groupings, and once again within each RFM cell grouping to rank individual records by attribute value, if needed. The concept of sorting data by a certain attribute is old and well known in the art. It is old and well known in the art that computer spreadsheets can sort records according to any attribute by which the record is defined. Sorting the plurality of records would allow an airline to quickly reference, access, and retrieve data. Sorting customers into and within RFM cell groups may enable airlines to identify and prioritize key customers (for retention, targeted marketing promotions, etc). Therefore, it would have been obvious to

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one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to include sorting for the reasons discussed therein above.

As per claim 9, Reference A fails to explicitly disclose the process of reiteratively performing step (d) of Claim 1 until records, which have same assigned discretized attribute scores but different attribute values associated with the first attribute or the second attribute, have been sorted to different ranks based on the value of the second attribute. However, Reference A teaches that a spreadsheet can be used to sort records into different RFM cells and group them together with other records sharing the same two digit cell code (meaning they have attribute values in the same quintile).

[Paragraphs 10 and 13]

The spreadsheet (embodied on a computer as software programs such as Microsoft Excel or Lotus 1-2-3) used to conduct the RFM analysis can also be used to sort records within the same RFM cell grouping. The spreadsheet software would perform step (d) once to sort records into RFM cell groupings, and once again within each RFM cell grouping to rank individual records by attribute value, if needed. The concept of sorting data by a certain attribute is old and well known in the art. It is old and well known in the art that computer spreadsheets can sort records according to any attribute by which the record is defined. Sorting the plurality of records would allow an airline to quickly reference, access, and retrieve data. Sorting customers into and within RFM cell groups may enable airlines to identify and prioritize key customers (for

retention, targeted marketing promotions, etc). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to include sorting for the reasons discussed therein above.

As per claim 10, Reference A teaches a computer implemented method of evaluating customers in the airline industry in a given period, the method comprising:

(b) first assigning a discretized score (code of 1,2,3,4 or 5) for each of the associated values [Paragraph 4];

(c) first sorting the records in order based on the assigned discretized scores associated with the net revenue (monetary value) [Paragraph 8];

(d) second sorting the records in order based on the assigned discretized scores associated with the number of flights (frequency) [Paragraph 6];

(e) third sorting the records in order based on the associated values associated with at least the net revenue and the number of flights, until records, which have different associated values associated with at least the net revenue or the number of flights, have been sorted to different ranks (RFM cells) [Paragraph 10]; and

(f) second assigning an evaluation score (RFM cell code) to each record which has been sorted [Paragraph 10].

Regarding claim 10(a), it is old and well known in the art that airlines keep extensive records of passengers, including a flight history (how often the customer flies, the number of flights flown, and the destination and point of origin for each flight

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segment) and the revenue generated. It is old and well known in the art that data analysis cannot be conducted until pertinent information has been obtained. This information could be found on an existing computer database maintained by the airline that could easily be accessed by a computer performing the analysis (imported as a data file, through a file transfer protocol, the Internet, etc). This would eliminate the need to re-enter data into a new database, or to copy data from one format to another (spreadsheet to database, database to spreadsheet, etc). Accessing a computer file to obtain customer information would eliminate these unnecessary steps. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to include a means of obtaining customer records to enable an analysis to be performed for the reasons discussed therein above.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reference A as applied to claim 1 above, and further in view of Powers et al. (U.S. Patent #US 6,604,084B1).

As per claim 5, Reference A teaches the method of claim 1, wherein step (e) includes the steps of:

(i) splitting the records, which have been sorted, into a number of groups (RFM cells) [Paragraph 10];

Regarding Claim 5(ii), Reference A fails to explicitly disclose an assigned evaluation score to records of each group. However, Powers et al. teaches a performance evaluation system where a quality score is calculated for performance areas. [Column 11, line 63 – Column 12, line 20] Quality scores may be weighted based on importance [Column 12, line 66 – Column 13, line 24] and would provide another means of comparing customers and identifying key customers. The quality score could also be used to evaluate and compare individual records and RFM cells. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to include a means for calculating a quality score for records for the reasons discussed therein above.

As per claim 6, Reference A fails to teach a method where the records are sorted into 100 groups, where an evaluation score of between 1 and 100 are assigned for records of each group. However, Reference A discloses a method where the records are sorted into 125 groups (RFM cells). [Paragraph 10]

It is old and well known in the art that the number of groups used to sort records is subjective, depending on the size of the airline's customer database and their desired level of analysis. This is similar to the number of cells used to divide a plurality of records (as discussed earlier) and is merely a design choice of the individual airline conducting the analysis.

Regarding Claim 6(ii), Reference A fails to explicitly disclose an assigned evaluation score of between 1 and 100 for records of each group. Powers et al. teaches a performance evaluation system where a quality score is calculated, but is silent regarding the range of quality scores. This performance evaluation system could be used to evaluate and compare individual records and RFM cells. Although the evaluation score range is arbitrary, it is old and well known in the art that evaluations and performance ratings are commonly made on a 1 to 100 scale. A quality score of records or RFM cells would provide another means of comparing customers and identifying key customers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Reference A to include a means for calculating a quality score for records as taught by Powers et al. for the reasons discussed therein above.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reference A, and further in view of the Database Marketing Institute's RFM for Windows® (herein referred to as Reference B).

As per claim 11, Reference A teaches a method for evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer architecture comprising:

(a) first assigning a discretized attribute score (code of 1,2,3,4 or 5) for each of the associated attribute values; [Paragraph 4]

(b) first sorting the plurality of records in order (from most recent to most ancient) based on the assigned discretized attribute scores associated with the first attribute (recency); [Paragraph 4]

(c) second sorting the plurality of records in order (by most to least frequent) based on the assigned discretized attribute scores associated with the second attribute (frequency); [Paragraph 6]

(d) sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (RFM cells); [Paragraph 10] and

(e) second assigning an evaluation score (RFM cell code) to each record which has been sorted. [Paragraph 10]

Regarding claim 11, Reference A is silent regarding a computer architecture for evaluating the plurality of records. However, Reference B teaches a software, RFM for Windows® that performs the RFM analysis taught by Reference A. RFM for Windows® has codified means for performing the tasks required of an RFM analysis and therefore meets the limitation of this claim. Since it could automatically receive data from a file and perform an RFM analysis, use of this software would eliminate the need to manually process the records through a spreadsheet, and would automate the process

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of sorting records (both into and within RFM cells). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to incorporate the software of Reference B to automate the process of conducting an RFM analysis.

As per claim 12, Reference A teaches a method for:

first assigning a discretized attribute score (code of 1,2,3,4 or 5) for each of the attribute values; [Paragraph 4]

first sorting the plurality of records in order (from most recent to most ancient) based on the assigned discretized attribute scores associated with the first attribute (recency); [Paragraph 4]

second sorting the plurality of records in order (from most frequent to least frequent) based on the assigned discretized attribute scores associated with the second attribute (frequency); [Paragraph 6]

third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (RFM cells); [Paragraph 10] and

second assigning an evaluation score (RFM cell code) to each record which has been sorted [Paragraph 10].

Regarding claim 12, Reference A is silent regarding a computer system for evaluating the plurality of records. However, Reference B teaches a software, RFM for Windows® that performs the RFM analysis taught by Reference A. RFM for Windows® has codified means for performing the tasks required of an RFM analysis. RFM for Windows® discloses minimum hardware requirements for using the software. RFM for Windows® requires a computer system comprising of:

- a (80386) processor; [Paragraph 20] and
- a (8 mb RAM) memory coupled to the processor, the memory having stored therein sequences of instructions (software) [Paragraph 20], which, when executed by the processor, cause the processor to perform the steps of an RFM analysis as disclosed by Reference A.

RFM for Windows® has codified means for performing the tasks required of an RFM analysis and specifies the minimum hardware requirements for a computer system running the software, and therefore meets the limitation of this claim. Since it could automatically receive data from a file and perform an RFM analysis, use of this software would eliminate the need to manually process the records through a spreadsheet, and would automate the process of sorting records (both into and within RFM cells). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to incorporate the software of Reference B to automate the process of conducting an RFM analysis.

As per claim 13, Reference A teaches a method for:

first assigning a discretized attribute score (code of 1,2,3,4, or 5) for each of the attribute values [Paragraph 4];

first sorting the plurality of records in order (from most frequent to most ancient) based on the assigned discretized attribute scores associated with the first attribute (recency); [Paragraph 4]

second sorting the plurality of records in order (from most frequent to least frequent) based on the assigned discretized attribute scores associated with the second attribute (frequency); [Paragraph 6]

third sorting the plurality of records in order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks (RFM cells); [Paragraph 10] and

second assigning an evaluation score (RFM cell code) to each record which has been sorted. [Paragraph 10]

Regarding claim 13, Reference A is silent regarding an article for use in evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value. However, Reference B teaches a sequence of machine readable instructions in machine readable form (software), RFM for Windows®, wherein

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execution of the instructions by one or more processors causes the one or more processors to perform the steps of an RFM analysis as taught by Reference A.

RFM for Windows® has codified means for performing the tasks required of an RFM analysis into a software program available to the public and therefore meets the limitation of this claim. Since it could automatically receive data from a file and perform an RFM analysis, use of this software would eliminate the need to manually process the records through a spreadsheet, and would automate the process of sorting records (both into and within RFM cells). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Reference A to incorporate the software of Reference B to automate the process of conducting an RFM analysis.

(10) Response to Argument

A. The 102 Rejection of Independent Claim 1 by Reference A

Appellant argues that paragraph 10 of Reference A does not teach a “third sorting of the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been stored to different ranks.”

The Examiner respectfully disagrees. Based on the attribute values associated with the first attribute (recency) and second attribute (frequency), and also incorporating a measure of monetary value, each customer is assigned a three digit RFM “cell code” ranging from 555, 554, 553, 552, 551, 545, ... down to 111. Placement into each RFM “cell code” is dependent on the quintile system employed to give customers an attribute value for recency, frequency, and monetary measures. Using this process, customers with different attribute values attributed to either the first or second attribute would inherently be placed in different “cell code” groups. Furthermore, using the “cell code” placement process and the attribute scoring process described by Reference A, the value, or “rank” of a customer in the 555 “cell code” group is more valuable (or of a higher “rank”) than a customer in the 111 “cell code” group; thus, each “cell code” group is ranked.

Appellant argues that the third sorting is based on actual attribute values, and occurs after sortings based on discretized attribute scores have been completed.

The Examiner asserts that the claim language requires the step of “third sorting the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute...” Reference A teaches the step of assigning an attribute score (1, 2, 3, 4, or 5) for each attribute value; hence, the attribute score is directly derived from an attribute value, and any sorting based on the attribute score is in essence a sorting based on the attribute value.

Furthermore, customers are not placed into a "cell code" group until after having been assigned an attribute score. Reference A teaches that a customer's attribute scores are based on their percentile (top 20% is given a score of 5, etc.), thus requiring each customer to have been previously ranked according to their attribute value. Thus, the use of three digit RFM "cell codes" to sort each customer into a "cell group" is based on the sorting of customers based on the first and second attributes (and, as mentioned above, each "cell group" is ranked).

Appellant argues that the selection of 30,000 records for a test promotion does not require or imply the need to reorder, with a sort, the records contained within each rank or RFM cell.

The Examiner asserts that the number of records used in the test promotion was not relied upon in making an art rejection, nor was the fact that a database with 1 million names was divided into 125 RFM cells. Furthermore, it is unclear how this information is relevant to the claims or claimed invention. Reference A explained that in a database of 1 million customers, using the RFM analysis taught, each of the 125 RFM cell groups would contain exactly 8,000 customers. As discussed above, the placement of each customer into a (ranked) RFM cell group requires the sorting of customers based on attribute values.

Appellant argues that Reference A does not show or suggest the step of “assigning an evaluation score to each record which has been sorted”.

Appellant cites page 12, paragraph 3 of the Office Action mailed 7/12/05 to argue that the Reference A does not show or suggest an assignment of an evaluation score that is in addition to the assignment of discretized attribute scores.

However, the passage recited by the Appellant is directed towards an analysis of claim 5, which has not been presented as grounds of rejection to be reviewed on appeal. Furthermore, the limitations of claim 1 e) and claim 5 (ii) differ in the fact that in claim 1, evaluation scores are assigned on an individual level (to each record), whereas in claim 5, evaluation scores are assigned at a group level. As written in claim 1, Reference A teaches the step of assigning an evaluation score to each record that has been sorted. The Examiner asserts that the three digit RFM “cell code” (taught by Reference A) is an evaluation score assigned to each customer based on their attribute value (and corresponding attribute score). Since the claim language does not preclude the evaluation score from being related to the sorting and ranking of a plurality of records based on attribute values, the claim limitation is taught by Reference A.

B. The 103 Rejection of Independent Claim 10 over Reference A

Appellant argues that paragraph 10 of Reference A does not teach a “third sorting of the plurality of records in to an order based on the attribute values associated with at least the net revenue and the number of flights, until records, which have different attribute values associated with at least the net revenue or the number of flights, have been stored to different ranks.”

The Examiner respectfully disagrees. Based on the attribute values associated with net revenue (monetary value, defined as total dollar sales in paragraph 8) and the number of flights (frequency, defined to be the number of transactions conducted with the customer in paragraph 6), and also incorporating a measure of recency, each customer is assigned a three digit RFM “cell code” ranging from 555, 554, 553, 552, 551, 545, ... down to 111. Placement into each RFM “cell code” is dependent on the quintile system employed to give customers an attribute value for recency, frequency, and monetary measures. Using this process, customers with different attribute values attributed to either net revenue or the number of flights would inherently be placed in different “cell code” groups. Furthermore, using the “cell code” placement process and the attribute scoring process described by Reference A, the value, or “rank” of a customer in the 555 “cell code” group is more valuable (or of a higher “rank”) than a customer in the 111 “cell code” group; thus, each “cell code” group is ranked.

Appellant argues that there is nothing in the teachings of Reference A that would have suggested or motivated a person of ordinary skill in the art to perform a third sorting of records.

The Examiner respectfully disagrees. The motivation for conducting the RFM analysis (and the required sorting steps) taught by Reference A is provided throughout the reference. Specifically,

- “Database marketers, today however, are finding that they can greatly increase these response rates in marketing to their existing customers by use of Recency, Frequency, Monetary (RFM) analysis” [Paragraph 1]
- After establishing the cell groups, members of the cell group can be provided with special offers and serve as a test group. “Once you know how each cell on the test responded to your offer you have some very powerful information; you know how each cell in your unmailed database will respond to the same offer” [Paragraph 12].
- “RFM measures what people do: when they buy, how often they buy, how much they buy – of your products and services. Clearly any system based on customer behavior is much more likely to be accurate in predicting future customer behavior than any possible combination of demographic information” [Paragraph 14]

- “You have often heard it said that 80% of your business comes from 20% of your customers. That may be true, but how do you actually measure this number? RFM gives you one way which is quite useful” [Paragraph 28].

Clearly, Reference A has established that RFM analysis is a tool used by database marketers to predict future behavior of similar customers using previous customer behavior. By performing the sorting steps required in RFM analysis, one of ordinary skill in the art would be enabled to apply RFM cell groupings as described above.

Appellant argues that Reference A does not show or suggest the step of “assigning an evaluation score to each record which has been sorted”.

Appellant cites page 12, paragraph 3 of the Office Action mailed 7/12/05 to argue that the Reference A does not show or suggest an assignment of an evaluation score that is in addition to the assignment of discretized attribute scores.

However, the passage recited by the Appellant is directed towards an analysis of claim 5, which has not been presented as grounds of rejection to be reviewed on appeal. Furthermore, the limitations of claim 1 e) and claim 5 (ii) differ in the fact that in claim 1, evaluation scores are assigned on an individual level (to each record), whereas in claim 5, evaluation scores are assigned at a group level. As written in claim 1,

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Reference A teaches the step of assigning an evaluation score to each record that has been sorted. The Examiner asserts that the three digit RFM "cell code" (taught by Reference A) is an evaluation score assigned to each customer based on their attribute value (and corresponding attribute score). Since the claim language does not preclude the evaluation score from being related to the sorting and ranking of a plurality of records based on attribute values, the claim limitation is taught by Reference A.

C. The 103 Rejection of Independent Claims 11-13 over Reference A in view of Reference B.

Appellant argues that paragraph 10 of Reference A does not teach a "third sorting of the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been stored to different ranks."

The Examiner respectfully disagrees. Based on the attribute values associated with net revenue (monetary value, defined as total dollar sales in paragraph 8) and the number of flights (frequency, defined to be the number of transactions conducted with the customer in paragraph 6), and also incorporating a measure of recency, each customer is assigned a three digit RFM "cell code" ranging from 555, 554, 553, 552, 551, 545, ... down to 111. Placement into each RFM "cell code" is dependent on the

quintile system employed to give customers an attribute value for recency, frequency, and monetary measures. Using this process, customers with different attribute values attributed to either net revenue or the number of flights would inherently be placed in different "cell code" groups. Furthermore, using the "cell code" placement process and the attribute scoring process described by Reference A, the value, or "rank" of a customer in the 555 "cell code" group is more valuable (or of a higher "rank") than a customer in the 111 "cell code" group; thus, each "cell code" group is ranked.

Appellant argues that Reference B also does not teach a "third sorting of the plurality of records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute and the second attribute, have been stored to different ranks."

The Examiner respectfully disagrees. Based on the attribute values associated with the first attribute (recency) and second attribute (frequency), and also incorporating a measure of monetary value, each customer is assigned a three digit RFM "cell code" ranging from 555, 554, 553, 552, 551, 545, ... down to 111. Placement into each RFM "cell code" is dependent on the quintile system employed to give customers an attribute value for recency, frequency, and monetary measures. Using this process, customers with different attribute values attributed to either the first or second attribute would inherently be placed in different "cell code" groups. Furthermore, using the "cell code"

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placement process and the attribute scoring process described by Reference A, the value, or "rank" of a customer in the 555 "cell code" group is more valuable (or of a higher "rank") than a customer in the 111 "cell code" group; thus, each "cell code" group is ranked.

Appellant agrees with the Examiner's assertion that Reference B teaches the invention of Reference A, implemented in a Windows® environment. The Examiner asserts that Reference A does indeed teach a third sorting of records, as claimed by the Appellant; thus, Reference B teaches a computer-implemented method of performing a third sorting of records.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Peter Choi



Examiner, AU 3623

Conferees:



Susanna Diaz

Primary Examiner
Art Unit 3623



SUSANNA M. DIAZ
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